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# SOIL CONSERVATION

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# SOIL CONSERVATION

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★ THIS MONTH ★

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WELLINGTON BRINK  
Editor

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**LUMBERMEN LEASE GRAZING RIGHTS.**—In the Midstate Soil Conservation District, Oreg., a large lumber company, Brooks-Scanlon, Inc., has leased the grazing rights on a 40,000-acre tree farm to adjacent livestock operators. This is believed to be one of the first times that a timber company has recognized the value of dual use of forest land and made grazing available to an organized group of neighboring ranchers.

Nine of the ranchers adjacent to the tree farm organized the Bull Springs Cattle Association, with John Weber, pioneer Tumalo rancher, as president. Brooks-Scanlon then leased the grazing rights to the association, stipulating that the grazing program follow a range conservation plan developed by Soil Conservation Service technicians assisting the district. This plan is based on a complete range site and condition survey of the area and includes recommendations for fencing, rotated-deferred grazing, water developments and proper salting.

(Continued on page 11)



**FRONT COVER.**—Irrigated corn on the farm of Olin Helms, Route 1, Lancaster, S. C. Water comes from a nearby farm pond. The pond and irrigation system were laid out by SCS technician John Nisbet. The water flows by gravity from its source above the field. The day that J. B. Earle made this photograph a fisherman had caught a nice string of fish in the pond. Crops on the rest of the farm were parched from heat and drought when the picture was taken.

All orders go to the Superintendent of Documents, Government Printing Office, Washington 25, D. C.



Sign, flanked by Osterson (left) and Taylor.

# Training Center At Coshocton

*Here in Ohio the Soil Conservation Service provides a unique and effective field training facility to develop its newly recruited technical employees as practical soil conservationists.*

By WESLEY D. BASHORE

SOONER or later, most men entering the Soil Conservation Service in the Midwest and Northeast spend or will spend a month or so at the SCS Training Center near Coshocton, Ohio. They go there after several months in the field getting an idea as to what their job is and as to what problems will confront them. The sessions at the Center tie together all the loose ends that a man gathers during the first few months on the job.

"We're not trying so much to train the men technically," says Harrison "Doc" Taylor, training center supervisor, "as we are trying to put the tools together in proper balance as a science of soil conservation. We don't want one man to overdo his specialty—we try to balance all the technical fields. And we constantly point out that the farmer and his desires and farming systems are essential points of consideration."

The trainees are given a taste of every field involved in soil conservation. If one confesses ignorance of some field, he's given reference material so he can fill in the blanks.

"We take the attitude that a fellow is here to learn and will try his best to do so," Doc says. "We've been right almost every time. The training center isn't run competitively, where one fellow is pitted against another for grades. They learn far more by joint discussion."

"Soil scientist and engineer sweat it out in each other's fields. Some engineers confess

surprise at learning that the soils field is so exacting. And all trainees become more appreciative of the mass of intangibles that the farm planner works with in his dealings with the farmer."

Men with different backgrounds and from different states are paired. This is for the purpose of broadening their horizons—preventing them from getting the idea that conservation is solely comprised of what they are doing and what their district is doing. Meeting and living with men from many states broadens and coordinates the program of the service.

There are innumerable tools of learning. Books, of course. And monoliths for learning



Lloyd Harrold explains tape on lysimeter scale showing variations in moisture contained in the plot of earth above.

soil characteristics, and grass root exhibits to illustrate the tonnage of organic matter. A big scale, to illustrate productivity balance. Instruments of many kinds. Charts, models and slides on everything from soil structure to proper handling of the instruments of the job.

One of the most closely observed pieces of equipment for learning is the hydraulic channel model—the only one of its kind in use out-



Trainees study soils at station.

side the laboratory, according to Taylor. By changing water velocity and grade, the channel illustrates energy buildups of water on a slope and the effects of various types of control structures on flow. The model was developed by Fred W. Blaisdell, of Minnesota.

Running close competition in interest, however, are the lysimeters of the Coshocton Soil Conservation Experiment Station. These widely publicized blocks of earth, one five-hundreth acre in size, afford the trainees new insight into the relations of soil, water and crops. The equipment is so finely adjusted as to be capable of measuring the weight of the dew.

The Center is ideally located. The entire experiment station is at the feet of the trainees and they take full advantage of it. The station's experiments and their application to the men's everyday work are effectively explained by the station director, Lloyd Harrold. The station offers excellent opportunities for the men to observe infiltration, contouring, stripcropping, woods management, the mechanics of water and its control, and many other conservation practices.

The men get the best possible instruction. Taylor, Osterson and Harrold are full-time



Experience in use of level.





Contour fencing experiment at station being described by Harrold and Taylor.

residents. Other SCS specialists from outside the area instruct the trainees in their own special fields.

The trainees get classroom instruction, then put their new knowledge to work on nearby practice farms cooperating with the Center, and on special field problems. Considerable time is spent in these field exercises. Sessions are often held in the evening, but you seldom hear any complaints about the load.

Even recreation is sometimes related to the course. There are weekend trips to Malabar Farm, the Muskingum watershed, the famed Cosmos Blubaugh farm, and other interesting sites. But, of course, the men do have to let off steam once in a while and baseball, volleyball, horseshoes, croquet and cards are favorite pastimes. When the season is right, the Center organizes a baseball team and plays Coshocton City League teams. "We're probably the only outfit around that loses a good ball team every month during the summer," Doc comments.

All the trainees take part in a safety program. A daily safety report is submitted and suggestions are made for improvement. Once in a while these suggestions take a twist such as this: "Carry soil augers properly, in order to prevent damage to the auger as it gouges an eye."



Harrold shows trainees how runoff is measured.

Because so much of their future work is in human relations, the men get training in public speaking, particularly extemporaneous. Each group has a Conservers Club, patterned after the widely-known Toastmasters Club, in which each trainee is required to give short speeches during his few weeks at the Center. One quick-thinking trainee was told to give an extemporaneous 1-minute talk on "My Most Difficult Task." He rose and spoke interestingly on why he found public speaking most difficult.

The Center is all under one roof. The classroom is in the spacious basement, the dining hall

and lounges on the main floor, and the dormitory and guestrooms on the top floor. Quarters are comfortable. Maintenance, board and dormitory are managed by the Association of Government Employees at the station, which pays a fee to the Government for use of the facilities.



Trainee gets experience talking on his feet.



Harrold and trainees at stacked silage pile.



Osterson points out effects of a straight overfall with a level approach floor in the hydraulic channel model.

Special sessions are sometimes held for foreign trainees. Their letters indicate high regard for the training they received and which was possible nowhere else. They have come from Brazil, Colombia, India, Pakistan, the Philippines, and other countries. An agricultural engineer from Sao Paulo, Brazil, wrote: "I want to suggest that every foreign student to be trained in conservation must attend first a period of training in this Center because here is the place to learn the basic principles of soil and water conservation."

Two types of sessions are held—one for subprofessionals, who are trained in the techniques of running a level, staking contours, and building terraces. The other is for professionals, those who are professionally trained in soil conservation and related fields but are new to the Service and need tooling up.

Sometimes—when a subprofessional becomes eligible for professional status and returns to the Center for additional training, he acquires a highly descriptive label—"Retread."

Some of the older fellows come to the sessions somewhat skeptical. "Why send me here?" they ask. But practically all of them, after a couple weeks of training, discount their earlier attitudes. Once in a while one of the younger fellows gets homesick—like the one who drove home to Missouri and back on one weekend. But usually the work keeps them so busy that they have little time to brood.

Some men get more out of the sessions than others. One trainee, in his spare time, met a girl in Baltic, a small town nearby. The others didn't know how he found time for courtin', but he came back the following year and married her.

Trainees like the course, feel that it is of vast help in getting them off to a good start, wish that it could be longer.



A moment of recreation between sessions.

# Dollars Grow on Reclaimed Land

*Here is a factual cost-accounting of flood control along the Colville River.*

By DEAN M. JONES

SOME 4,088 acres of farmland along the Colville River, in Washington, have been reclaimed since 1942 by flood control practices in the Kettle-Stevens Soil Conservation District. Thousands of additional acres have benefited partially or indirectly.

Total cost to December 1953 was \$116,886. Of this amount, farmers paid \$69,579 and the State, on a matched fund basis, \$32,655. The balance of \$14,652 represents engineering and other technical services furnished by the Soil Conservation Service.

The accomplishments include river channel realignment, removal of brush and trees, removal of sandbars to eliminate congestion of floodwaters, smoothing of spoil banks, and diking and riprapping for protection of river banks. There has also been considerable supplemental ditching to improve both surface drainage and seepage on lands adjacent to the river.

Preliminary work began in 1942 with the organization of the Kettle-Stevens district. Within the district's framework are 8 flood control associations formed by groups of farmers having common problems and varying in number up to 18 members.

The Dollar Lake Association, organized in 1943, consists of the following: G. H. Oakshott, Mrs. J. G. Morrison and Dale Morrison, Alvin Miller, Rene Dubois, H. E. Buchanan, Mildred Rhodes and Grace Harrigan, Grancy Rhodes, and Louis Strauss. The area known as Dollar Lake is located just west of Colville. Improvement has consisted of blasting 7,720 feet of

ditch and shaping the banks. The cost was \$1,377 and direct benefit resulted to 300 acres of land.

The Deer Lake Association organized and began work in the south end of Stevens County near Loon Lake in 1943. A ditch 8,900 feet in length was blasted to improve surface drainage. This job cost the farmers \$1,575, and directly benefited 368 acres of land.



Looking north from Oakshott bridge on Colville River. Overhanging trees, brush and other debris restrict water movement, adding to flood hazards. The other view shows the same area after dredging. Channel has been widened, deepened, trees and brush removed, free movement of water permitted.



Note.—The author is work unit conservationist, Colville, Wash.



Dollar Lake drainage ditch enlarged by blasting. The "after" picture shows the banks shaped and seeded.



The landowners in this group were: D. E. Gardner, W. Worthington and R. L. Sanders, C. W. Oberg and R. W. Gardner.

The Twelve-Mile Association, consisting of 6 farmers, R. N. McLean, Ed Lorentzen, R. M. Skidmore (Monahan estate), Arthur Ott, H. C. Fuller, and Lester Brownfield, 12 miles south of Colville, was organized and began work in 1945. The job included river realignment and channel clearing. The work was completed in 1949 except for continued minor improvements. The cost to this group to date has been some \$29,000, and 529 acres of productive land have benefited directly. In addition to 4½ miles of river-channel improvement, supplemental flood control work was accomplished on 1,320 feet of Stranger Creek to relieve flood hazards of adjacent lands.

Ten farmers just west of the town of Valley organized the Valley Flood Control Association in 1948 for the purpose of improving 4 miles of river channel. They were John Tubbs, Donald Kilmer, Albert Kulzer and Walter Beck, R. J. Waldron, J. E. Potter, T. H. Hurbi, L. J. Davis, Ralph Hafer, and Edward Kilmer.

Improvements consisted of realignment, deepening, widening and bank reshaping of the Colville River. Completed in 1948, this work cost \$14,120 and benefited 711 acres of land. In addition to this, 2,640 feet of supplemental ditching was done.

In 1949 the old Dollar Lake project was reorganized to include all farms lying adjacent to the river for a 5-mile reach just west of Colville. The Colville River Flood Control Association is composed of the following landowners: G. H. Oakshott, William Huguenin, Earl Seitters, Grancy Rhodes, Mildred Rhodes and Grace Harrigan, Fred Herdrick, Walter Woods, Earl Sherrodd, Robert Wimmer, William Bronson, Louis Strauss, Nelson Brothers, Fred Draper, Mrs. J. G. Morrison, Rene Dubois, H. E. Buchanan, Stanley Morris, and Earl Gibbs. The 5 miles of river channel improvement cost \$30,000 and 1,500 acres of land were helped. Annual maintenance includes removal of sandbars and other debris, riprapping and diking weak points, and removal of sand and gravel washed in by feeder streams.

The Arden Flood Control Association was formed in 1948 by 6 landowners: E. O. Rosenberg, Glen Baird, M. W. Burnett, Fred Ashely, Ed and A. L. Penzig. Channel improvement began in 1950 and was completed in 1951. This project directly benefited 400 acres of land, at a cost of \$11,600.

In 1951 A. B. Lind set up what is known as the North Addy Flood Control Association to extend the work of Twelve-Mile project southward to the bridge at Addy. The improvements, including primarily a realignment of the Colville river channel, benefited 50 acres of land at a cost of \$4,600.

The Addy Flood Control Association was organized in 1951 to extend river channel improvements southward from the North Addy project and includes the following landowners: Evald Peterson, Van Griffin, Victor Helt, W. L. Philpott, and Harold Major. Dredging operations have been completed through 4 of the farms and disposal and leveling of spoil banks has been accomplished on 3. There have been 3 farm bridges constructed and 2 lateral drains to a low area adjacent to the river. To date the job has cost \$9,962 and when completed it will directly benefit 230 acres of land. It is



anticipated the project will be finished this year at an additional cost of approximately \$2,500.

While there is yet much work to be done in flood control along the Colville River, the improvements already made give encouragement to the belief that virtually 100 per cent control eventually can be accomplished.

A sluggish, meandering stream with snake-like bends and brush-grown banks forming bottlenecks at many points, has been transformed into a relatively straight channel having greater capacity and accelerated flow.

The Colville Valley is about 20 miles long and varies in width from a few hundred feet to 3 miles.

The Twelve-Mile project was the first job requiring use of heavy equipment. The Soil Conservation Service made available a new half-yard gasoline-powered combination shovel and dragline in 1945. The district, in turn, leased the equipment to cooperators. In 1949 this piece of equipment was granted to the district and traded in on a new 5/8-yard machine now in operation.

The per acre cost of the work varies from one project to another, depending on conditions. The overall costs, however, have amounted to a relatively small sum compared with the good accomplished. The \$102,234 spent on all projects has averaged \$25 per acre of land benefited. This cost includes \$32,655 or approximately \$8 per acre contributed through the State Department of Conservation and Development on a matched fund basis. The engineering and other technical services furnished by the Soil Conservation Service, amounting to \$14,652, averages \$3.60 per acre.

The 4,088 acres brought into full production, therefore, cost the landowners \$17 per acre, the State \$8 per acre, and the Federal Government, through the Soil Conservation Service as co-operating agency \$3.60 per acre, for a total of \$28.60 per acre.

It is only fair to state that only those jobs starting after 1948 participated in matching State funds. The projects of Dollar Lake, Deer Lake, and approximately \$20,000 of Twelve-Mile, were financed entirely by farmers themselves. It should not be assumed, either, that



Colville River below Palmer Siding bridge showing sandbars and restricted channel. Companion picture was taken from same point after dredging. Sandbars have been removed and channel enlarged to provide increased capacity.



all the 4,088 acres were totally recovered by the operations. There were, however, substantial benefits to thousands of other acres. Should we but estimate a 75 percent benefit to the 4,088 acres, on the basis of 40-bushel wheat, we find an annual increase of 122,640 bushels, amounting to an annual gross return, at \$2 per bushel, of \$245,280. The formerly waterlogged lands have been converted to grains and hay or pasture, and under good conservation practices will gross that much or more, depending on the use, kind and management of crops grown, whether it is \$20 hay, 75 percent butterfat or 25 cent beef.

The foregoing analysis should serve to emphasize that farmers working together through soil conservation districts, whether as individuals or as groups can, and do, manage their affairs for better use of land and water resources and to their direct profit.

# Science Builds Up Timber Volume

*Trees sometimes constitute the best conservation practice on fields worn down by other crops.*

By CHARLES A. CONNAUGHTON

KEPTICISM has had to take another low bow to scientific fact.

Consider the case of the Winn district of the Kisatchie National Forest in Central Louisiana, for which a new management plan was recently approved by Washington headquarters of the U. S. Forest Service.

In submitting the first management plan in 1940, the regional forester had described the Winn unit as heavily cutover, with tag ends from old logging operations, immature young stands, patches of oldfield timber, and barren areas providing little encouragement to the lumber producers of that era. In that plan, only about 11,000 of the total 167,000 acres had pine stands that were considered saleable—119 blocks, two-thirds of which were less than 50 acres each.

Looking at this area then and remembering the big yields of virgin timber these areas had produced, skeptics shook their heads. "Sustained yields?" they questioned. "How can such management pay dividends?"

The facts brought out during a 1952 survey, on which the current timber management plan is based, indicate, however, that such management does pay dividends. Based on the plan's estimate that the timber carrying capacity of this land should average 8,000 board feet per acre, and that a subsequent boundary realignment has reduced the net area of the unit to 161,240 acres, the following facts are outstanding:

The volume of sawtimber which the Winn District could carry continuously is more than 1¼ billion board feet.

The volume of sawtimber on the Winn District during the 1939 survey was 281,247,000 board feet, 21 percent of capacity.

At the time of the 1952 survey, the Winn District was carrying 837,831,000 board feet of sawtimber, 65 percent of the growing stock goal.

In addition to that volume increase, 147,611,000 board feet of pine, cypress, and hardwoods were marketed from the unit during the 13 years between 1939 and 1952. That includes not only saw logs, but also pulpwood, poles, veneer, and all other products.

By 1956, the foresters estimate the volume of standing timber on the Winn unit will have reached 916,623,000 board feet, 71 percent of the estimated capacity.

This 4-year gain of 78,792,000 board feet of sawtimber will result, according to the plan, from cutting only 58 percent of the total growth during that period. On an average acre, that means the estimated growth each year would be 291 board feet; but, since 169 board feet would be harvested from that acre each year, the growth gain would be only 122 board feet annually—a total of 488 board feet per acre for the plan period of 4 years.

That average per acre, per year increase of 291 board feet in sawtimber volume results not only from growth on trees already in the sawtimber class, but also from volume added by young trees growing into that class each year. It does not include an additional growth volume on trees still in pulpwood size, measured in cords. Total annual growth volume during the plan period will average nearly 6 percent of the stand volume.

Note.—The author is regional forester, U. S. Forest Service, Southern Region.



Oldfield stand of loblolly pine under management, Winn Parish. The field was last cultivated in 1909.

Thus, this representative segment of a national forest shows steady advancement toward maximum production from a status of more than 75 percent depletion, and the Winn District continues to furnish raw materials for local industries. During the 13-year period from 1939 to 1952, the average annual cut from the unit was 11,355,000 board feet.

During the current 4-year period, it is planned to harvest 154 million board feet of sawtimber, pulpwood, poles, veneer, and other products—more than during the entire previous 13 years. This is an annual average of 38,500,000 board feet—more than three times the former average, but with no reduction in progress toward that goal of a billion and a quarter board feet of timber volume.

### LEASE GRAZING RIGHTS

(Continued from page 2)

Brooks-Scanlon had for many years leased the area to non-resident sheepmen. Some cattle strayed into the area from nearby private and public ranges, but there was no organized use by cattlemen. Since the range survey and plan were completed in 1950, however, the company has been attempting to find a way of using its grazing resource to enhance the livestock economy of the neighboring ranches and community. The consummation of the lease, with the Bull Springs Cattle Association appears to have achieved this aim.

—J. F. ROGERS, and W. R. CURRIER.



Obviously pleased with the plan for use of timber company lands by the cattle association: Tony Halter, chairman of the board of supervisors, Midstate Soil Conservation District; John Weber, president, Bull Springs Cattle Association; Hans Milius, forester, Brooks-Scanlon, Inc. (Photo courtesy of Bend Bulletin, Bend, Ore.)



Assistant Scoutmaster George Truitt collects topsoil and subsoil in which Scouts will plant beans and note comparative growth rates. Textural differences between topsoil and subsoil at this site were too slight for detection by blind boys.

"Hello, are you Mr. Gleason?"

"Yes, what can I do for you?"

"I am Reede Hardman, assistant scoutmaster of Troop 2 here at the California School for the Blind. The Explorer Scouts in our troop have voted to study for the Soil and Water Conservation Merit Badge. Can you help us?"

"Why, I don't know, I guess so. Let me think it over and call you back."

**T**HE FOREGOING conversation took place at Berkeley early this year. Then Gleason called Herbert. "You know, Fred, this is a challenge we can't ignore."

"Did you say 'we'?"

"Yes, you and I. Let's tackle it!"

So we did. We started with 12 boys. We held 8 indoor meetings of about an hour each on 8 successive Tuesday nights.

At the first meeting the general nature of soil was described, what was happening to it, the need for conserving it. It was decided at the outset that the boys should participate as much as possible, so they were invited to ask questions frequently and we also quizzed them after discussion of each item.

At the second session the boys were grouped in threes, each group being supplied with four

Note.—The authors are forester, Forest & Range Experiment Station, U. S. Forest Service, Berkeley, Calif., and assistant state conservationist, U. S. Soil Conservation Service, Oakland, Calif., respectively.

# Teaching the Blind

By CLARK H. GLEASON and  
FRED W. HERBERT

samples of soil in paper cups. These were sand, loam, clay, and peat. A jar of water was provided. At this juncture the boys were told how soil could be identified by picking it up, moistening it, and rubbing it between thumb and fingers. The evening was spent drilling the boys in the technique. Toward the close of the session, single samples were handed out to test the boys' ability to identify the soils without comparing them with others. They learned fast and showed a keenly competitive spirit.

At the third session the work of the first two meetings was reviewed and additional practice given in determining soil texture, as well as introducing a few intermediate soil types. Some of the boys became quite proficient in distinguishing rather closely related soils by this method.

Watersheds were then discussed by use of a homemade putty model. The boys ran their fingers across this to learn the relationship of rivers, subsidiary channels, hillsides, hilltops, and alluvial fans. A county relief map was also employed for explaining watersheds and other physical land features.

At the fourth meeting there was further practice and review as to what constitutes differences in soils, as to soil and water relationships, and particularly as to watersheds. To add interest, the model watershed had been completed to show subwatersheds, adjacent drainages, and some "saddles" on the ridges. They were eager to run their hands over this new model. One boy brought a watershed model he had made of modeling clay which excited considerable interest.

At this session the hydrologic cycle came in for attention in connection with watersheds.

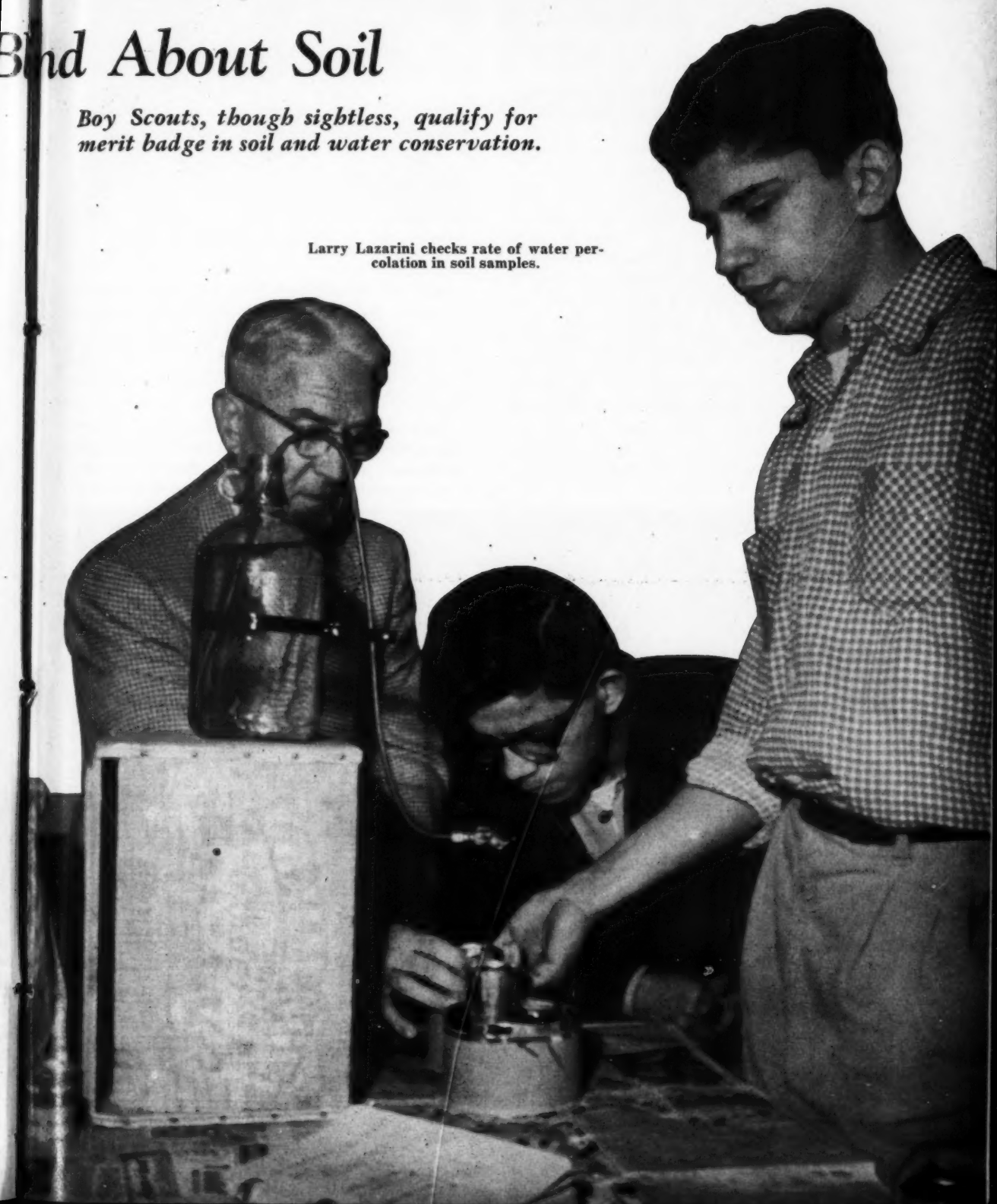
To demonstrate infiltration rates and water-holding capacities, a special apparatus was used, consisting of a half-gallon water bottle, fitted



# Blind About Soil

*Boy Scouts, though sightless, qualify for merit badge in soil and water conservation.*

Larry Lazarini checks rate of water percolation in soil samples.



with copper tubing and two faucets, and mounted on a wooden box. Two baby-food cans were filled with soil to within a half inch of the tops, and one was placed under each faucet. One can contained sand, the other clay. The bottoms of the cans were perforated. They rested on wire grids. The faucets were turned on at the rate of about a drop a second. One boy verified this for the group. Small metal disks were laid on top of each soil sample to prevent splash. Another boy was selected to place his hands on the undersides of the cans and determine how long it took for the water to come through. The other boys were asked to estimate how long it would take. Some said it would take twice as long for the water to go through the clay soil; others said 3 times; one boy guessed it would be 10 times. Actually, it took the water approximately 4 times as long to saturate the clay as the sand, indicating the clay would hold considerably more water than sand. The water-holding capacities of soils, as affected by particle size and pore spaces, had been explained previously.



Explorer group. Soil samples in paper cups. Clark H. Gleason is at left; Fred W. Herbert at right.

After the soil in the two cans was completely saturated the faucets were regulated to allow water to go through each soil sample at the maximum rate without surface runoff. It was found that the sand took water three times as fast as the clay.

After these demonstrations, the boys were quizzed on what they thought was the practical significance of the test with relation to growing crops, such as what kind of soil they would pre-



Instructors and students discuss construction of log check dams.

fer to have for growing alfalfa under irrigation in a dry country. The answers to this and similar questions made it apparent that water-holding capacities, infiltration, and percolation were getting pretty well understood.

The first four sessions were designed to familiarize the boys with soils and their relationships, soil erosion and soil conservation. At the last four we concentrated on the requirements of the Boy Scout Soil and Water Conservation Merit Badge Manual for a merit badge in soil and water conservation. Practically all of the items in the manual were included. Where diagrams were called for we substituted verbal explanations and used the watershed model.

Under the "Do" items, we conducted a field trip. The boys were taken over a series of check dams and roadbank wattling established by another Scout troop. The work was described carefully. The boys got down on their hands and knees to feel the log structures, their spacings, the way the dams were tied into the banks, and other details. On this trip, differences between soils on sloping and level lands, and in open fields and woods, were noted. The boys were then divided into twos, each team filling one can with topsoil and one can with subsoil. Later, bean seeds were planted in each can and the boys noted their germination and relative growths in the two soils.

After the 8 sessions, the boys met individually with their counselors to take their final examination. Twenty-four questions were used. Of the 12 boys who started, 1 dropped out. Most of the 11 boys qualified with high grades. In fact, their ability to answer questions relating to all phases of the study and demonstrations was as gratifying as it was surprising.

Any apprehensions that these boys would be difficult to qualify for this merit badge were dispelled soon after we started working with them. They had the attitude that they could learn as well and as quickly as anyone, and they proved it. Demonstration devices, such as those described in this article, were very helpful. The course was facilitated by having two instructors who could alternate in talking and setting up and adjusting apparatus. This also heightened the interest of the boys.

*(Continued on page 23)*

## DISTRICT PROFILE



VAN AKEN  
of  
MICHIGAN

A CLOSE working relationship with factors vital to a successful program of soil and water conservation—such as education, action, cost-sharing and credit—provides the background for Herbert Van Aken to use in connection with his local soil conservation district. His breadth of understanding has been recognized by the Michigan State Association of Soil Conservation Districts and by the National Association of Soil Conservation Districts in selecting Herb for special responsibilities.

Early in 1948 the farmers in Eaton County, Mich., created the Thornapple-Grand Soil Conservation District. Herb had been active in setting the stage for the district; consequently, he was elected to the original governing body, and at once became its chairman, a position he has held continuously ever since. He has recently been reelected to a 3-year term and again made chairman.

Under Herb's administration the Thornapple-Grand board launched an educational and action program that has continued to build momentum with each passing year.

This year's work plan calls for sponsorship or district participation in 26 activities. The most impressive feature is the willingness of the directors to assume individual responsibility. Briefly, the plan includes work with rural schools, the Boy Scouts, Vo-Ag schools, the ministerial association, farm equipment dealers and elevator operators, an air tour, pasture tours, appearances before civic groups, revision of the district program of work, investigation of watershed programs with a view to their applicability in the district.

The Michigan Soil Conservation Districts Law of 1937 provides for the establishment of a State Soil Conservation Committee. The function of the committee is to administer the State Districts Law. Its membership includes four practical farmers from among the directors of the 70 districts in the State. In 1949 Van Aken was appointed to serve as a member of the committee by the Governor. He was reap-



Mr. and Mrs. VanAken.

pointed to a second term of 4 years in 1953. In this capacity he has been involved with the organization of 15 new soil conservation districts. In most instances, he has at some stage assisted local people in the establishment of their districts.

The State Association of Soil Conservation Districts elected him president in 1950. He previously had served 2 years as vice president. He served as president until February this year, when he declined to run for reelection because of the pressure of other activities and a sincere belief that leadership should be changed occasionally. His counsel and active assistance to the state association will continue to be available in any way that it can be used to further the work of districts. During Herb's tenure as president the organization was instrumental in bringing about many worthwhile achievements. In 1952, the state association, after an analysis of needs for conservation research activities, carried their story to the Michigan legislature, which appropriated \$30,000 to be used in research projects having to do with soil erosion and depletion as influenced by soil management in the fruit areas, in a study of rotations and cultural and tillage practices necessary for improvement of physical characteristics of Michi-

gan soils, in an economic analysis of crop and livestock production practices associated with conservation farming, in an erosion and land use study, and in the establishment and maintenance of grass and legume combinations on the State's medium- and lighter-textured soils. This work is carried on by Michigan State College.

The State association has also been active in purchasing available supplies of nursery planting stock for resale to districts.

As president of the state association, Van Aken served as a delegate to the annual meeting of the National Association of Soil Conservation Districts. In 1953, he was elected a director of the national association, and this year was reelected.

For 6 years, he has served as the representative of the state association to the Michigan Agricultural Conference. This Conference is an organization of representatives of all active agricultural groups in the State banded together to promote the interests of the State's agriculture.

In June 1953, the Secretary of Agriculture appointed Herb as one of the three farmer members of the Michigan State Agriculture Stabilization and Conservation Committee, which administers the price support program, conservation cost-sharing, and acreage allotment in the 83 counties.

Herb has found time to be active, too, in a number of other organizations. At one time or another, he has been affiliated with such organizations as the Dairy Herd Improvement Association, the Artificial Breeders Association, the Eaton Council of Boy Scouts of America, the Eaton County 4-H Fair, has been a director of the Lansing Area Production Credit Administration office, a member of the Eaton County school board, an alternate member of the Eaton County Agriculture Stabilization and Conservation Committee, the County Agricultural Extension Advisory Council, the Michigan Farm Bureau, the Eaton County Agricultural Council, has been an associate member of the Soil Conservation Society of America, and belonged to Kiwanis, Masonic lodge, and Methodist church.

Last fall the Michigan United Conservation Clubs honored him at their annual meeting in



Cadillac. He was given an award of merit citing him for "outstanding service to the cause of conservation in the field of agriculture." It was the first such award ever made to a Michigan farmer. This was a fitting tribute from the State's 57,000 organized sportsmen who realize the contribution Herb has been making to the conservation of the State's soil and water resources, and consequently, to its game and timber resources.

In addition to all the above "extra curricular" activities, Herb does operate a farm. The Van Aken farm of 300 acres is, of course, operated under a complete soil and water conservation program. It includes pasture improvement, crop rotations effective in controlling erosion, fertility programs, and two farm ponds. One farm pond provides stock water at a pasture area removed from the main farm; it is stocked with bluegills and bass, and it also serves as a swimming pool for many children from the surrounding Eaton Rapids area. The main enterprises consist of dairying and raising 32,000 broilers per year. The broiler enterprise now is being expanded by the construction of a 260-foot poultry house which will have a capacity of 10,000 birds.

Credit for his being able to give so generously of his time to public service rests largely with Mrs. Van Aken and their three sons who carry on the farm work in his absence.

Few other directors of soil conservation districts have been able to contribute so much firsthand knowledge of agencies and groups in a position to assist in an effective soil and water conservation program. Herb Van Aken's affiliation with the extension advisory council, the county school board, and the county agricultural council has given him keen appreciation of how public educational groups can assist the district program and, perhaps even more important, how the district can assist such groups in their soil and water conservation educational programs. The assistance rendered his district by the Soil Conservation Service has given him a firsthand appreciation of the importance of sound techniques. Years of affiliation with the Eaton County Production and Marketing Administration Committee and its Agricultural Conservation Program, and more recently with the State Agriculture Stabilization and Con-

servation Committee, has given him valuable insight into the importance of government finance or cost-sharing. As a director of the Production Credit Administration, he has noted occasions where credit is of extreme importance in aiding a farmer to amortize various conservation practices.

Few are the conservationists in Michigan who are unfamiliar with Herb Van Aken's philosophy and achievements. All are impressed by his enthusiasm, his sincerity, and boundless energy. Many groups have called upon him for addresses. Wherever he goes, he impresses people with the urgency of the conservation job and with the need for cooperation in its doing.

—EARL FENTON

## Pilot District Dramatized

"GRASS—The Elko Way" is the title of a color motion picture produced by the Northeast Elko (Nev.) Soil Conservation District and the Nevada Association of Soil Conservation Districts.

James Stewart, Hollywood actor and Elko County ranch owner, narrates the 16 mm. educational film which is 18 minutes in length. Filmed last summer in the two-million-acre district, the picture was completed in Hollywood.

The National Association of Soil Conservation Districts is making arrangements for the film to be shown in soil districts of all the public lands states of the West.

The film relates how the rancher-supervisors of the Northeast Elko District have gotten underway a district-wide program of grass re-seeding, restoration and improvement.

Three years ago the Northeast Elko District was designated as the nation's "No. 1 pilot district" for the West, where conservation problems involve both public and private lands.

The district supervisors pioneered in getting landowners and state and federal agricultural and land management agencies to work on a common program for improvement of all the district's land, water, and wildlife resources.

The picture shows how the supervisors initiated the grass improvement program, the steps being taken on range and irrigated lands and the program's provisions for improved fishing, hunting and camping.

Cooperating with the district and the state association in the production of the film were the Nevada Cattlemen's Association, The Nevada State Soil Conservation Committee, The Nevada State Departments of Fish and Game and Agriculture, The Fish and Wildlife Service and the Bureau of Land Management of the U. S. Interior Department, and the Soil Conservation Service, Forest Service and Agricultural Conservation Program Service of the U. S. Department of Agriculture.

Graham Hollister, Genoa, Nev., rancher, was chairman of the Nevada Association's motion picture committee which arranged for the filming of the Northeast Elko Story. Eyer Boies, one of the Northeast Elko Supervisors, was chairman of the district's picture committee. Rancher-supervisors of the Elko District in addition to Boies are Harvey S. Hale, chairman, Clarence Elquist, John Moschetti, Vance Agee, and William Gibbs, Jr.

## Conservation Partnership

By W. MARTIN MUTH

A UNIQUE system of working with farmers has been developed by the farm equipment dealers and the district directors in Pennsylvania's Lancaster County Soil Conservation District.

The conservation partnership began after the dealers heard a thorough explanation of the district and its program and saw some of the fine work the district was doing to help cooperating farmers solve their conservation problems. Meetings and field trips were jointly arranged for by Amos Funk, chairman of the board of district directors, and Ben Snavey, president of the county dealers association.

Note.—The author is work unit conservationist, Soil Conservation Service, Lancaster, Pa.

The dealers, realizing they too had a stake in the agricultural future of the county, expressed a desire to assist the district directors in promoting conservation work on the farms in the district. The directors accepted their offer.

All 47 county dealers decided the first thing they should do was to learn first-hand all they could about the conservation program and problems in the district so that they would have the background and understanding to really talk conservation. To accomplish this, the district directors selected a cooperator in each dealer service area who had a conservation plan fully or partially established on his farm. Each dealer was then assigned the responsibility of working with the cooperator in his particular area. Frequent visits to these cooperator's farms are giving the dealers an unusually intimate acquaintance with and knowledge of the conservation problems and their solution. In turn, the farmers are benefiting from regular chats with men who know machinery.

The next step of the Lancaster dealers in this cooperative venture is for each to enlist one new district cooperator during the coming year.

The contacts the dealers are making are resulting in more farmers having a better perspective of conservation and the benefits that can be obtained. They also feel that the contacts are creating good will among both their regular and their prospective customers.

One day not long ago five newspaper clippings came to my desk. The first told of a devastating dust storm in the Great Plains.

The second described a million dollars worth of flood damage incurred in a few hours by a small southwestern city.

The third noted an appropriation of a large sum of money for dredging the ship channel in one of our harbors.

The fourth was an editorial which speculated that New York City restaurant customers may not get a glass of water with meals unless they ask for it.

A fifth was a forecast of crop production for this coming year.

Our newspapers note such events and developments day by day. But seldom do our writers take time to relate items to one another or to their common denominators—soil and water, and the use and management of those two basic resources.

These events are news because what happens to soil and to water so directly and so drastically affects people.

—D. A. WILLIAMS, Administrator, Soil Conservation Service, in a talk before the Rivers and Harbors Congress, 1954.

# Soil Erosion Control On Okinawa

ONE OF the most serious problems encountered on Okinawa, Ryukyu Islands, is that of controlling soil erosion. Extensive military construction during the past 4 years on airfield, cantonment, housing and highway areas has aggravated the problem of reducing erosion and subsequent soil losses. Removal of natural cover of trees, shrubs, and grasses during construction has accelerated these losses.



Embankments sodded to Okinawa shiba grass (*Zoysia ashisiri*.)

The effects on tropical soils, when denuded of their vegetative cover and exposed to frequent intensive rainstorms, have long been recognized. These effects or soil losses which occur in the form of landslides in mountainous terrain and on lands of lesser slope are of particular significance. Loss of fertility by leaching of soil nutrients from cultivated lands also occurs with sufficient rapidity that many fields are abandoned after minimum tenure owing to non-productibility. These eroded and sterile soils recover very slowly. Restoration of soil fertility, however, may be accomplished under proper soil management practices. Management practices include but are not limited to addition of organic matter in the form of vegetative

By R. R. HINDE and ALBERT F. SANDER

mulches and composts, application of chemical fertilizers, liming, and plowing under of legume crops. These practices with various modifications are essential to effect reestablishment of a protective ground cover of grass.

Accepting the challenge of controlling erosion and realizing the need for sources of suitable plant materials, the Far East Air Forces agronomy staff initiated control plans early in 1950 which included the establishment of plant nurseries. One nursery was established at Kadena Air Force Base and two at Naha Air Force Base. One of the Naha nurseries was organized and placed under direct management and supervision of the United States Civil Administration of Ryukyu Islands. Centipede-



Main waterways riprapped in bottom of channels, upper slopes sodded and mulched.

grass was brought in from Florida and planted in the Kadena nursery in July of 1950.<sup>1</sup> Two species of *Zoysia*-grass, Korai-shiba (*Zoysia tenuifolia*) and No-shiba (*Z.-japonica*), were brought in from Japan during the same summer and also planted in the Kadena nursery along with local Okinawa grass selections.<sup>2</sup> These

Note.—The authors are agronomist, headquarters Far East Air Forces, Tokyo, Japan, and chief, ground section, headquarters, USAF, Washington, D. C., respectively.

<sup>1, 2</sup> Introduced by A. F. Sander.



Revegetation, drainage flumes, Stearley headquarters housing area, December 1953.

early plantings were followed by the introduction of other grasses which were also propagated vegetatively.

The Kadena nursery was expanded in 1952 to over 10 acres primarily devoted to the propagation of grasses which provided planting material for the establishment of cover on all types of grounds. These grasses consist of centipedegrass (*Eremochloa ophioides*), Okinawa shibagrass (*Zoysia* species); Manila grass (*Z.-matrella*); Korai-shiba (*Z.-tenuifolia*) and bermudagrass (*Cynodon dactylon*).

The nurseries are utilized for the propagation of tree and shrub planting materials for dust and erosion control, in addition to that of grasses. Trees include Australian pine (*Casuarina equisetifolia*); chinaberry (*Melia azedarach*); acacia (*Acacia confusa*); narra (*Pterocarpus indicus*); and banyan (*Ficus religiosa*). Shrubs that are used for erosion control include such plants as bamboo, mulberry,

althea and creeping juniper (*Juniperus procumbens*).

Flowering shrubs also used for dust and erosion control, to reduce bleakness of island slopes and to furnish a source not otherwise available, include species of roses, azalea, oleander, saucerleaf (*Nothopanax cochleatum*), jasmine and hibiscus. Some novelties such as banana and papaya trees are also propagated.

Plants propagated in the nurseries, however, represent only a small percentage of the total classified plant life occurring on the island. There are over 2,475 plant species, of which 500 are cultivatable. Plant growth thrives profusely in its natural state under the tropical and temperate climatic conditions characteristic of the southern and northern portions, respectively, of the island. Typhoons which frequently visit the island cause serious damage to plant life and prevent maximum growth, although the island



has an average of 85 inches annual rainfall with temperatures averaging 72 degrees.

Mechanical controls also play an important role in the control of erosion on Okinawa. Installation of these controls precedes the planting of grasses, shrubs, and other materials. Diversion terraces with sodded or soil-cement outlets, and flumes constructed of rubble or asphalt paving are used to intercept and carry the runoff from higher elevations to lower levels. The runoff at the lower levels is discharged into grassed waterways and other drainage facilities. Some of the major drainageways are coral rock riprapped, with the riprap usually extending from the channel floor to a height of 3 to 4 feet up the sidewalls. The upper surface of the sidewalls and adjoining slopes are spot-sodded with cogongrass (*Imperata cylindrica koenigii*) or with other grasses of low growth habit, in rows spaced 12 to 18 inches perpendicularly to the slope.



Drainage structure along highway, Kadena air base, 1953.

Bermudagrass is used extensively for lining drainageways and for stabilization of embankments. Planting experience indicates that bermudagrass and other native Okinawa grasses, when planted on 2-foot centers, will completely cover the soil surface in less than a year. Centipede grass has proved very successful for vegetative cover on airfields, specifically when used for runway and taxiway shoulder stabilization.

Runoff from pavement surfaces provides ample irrigation for adequate grass growth. Grass mulches consisting of "Talahib" or "Gushichi" (*Saccharum spontaneum*) and "Susuki" (*Miscanthus sinensis*) are also placed on slope surfaces to aid in control of soil movement. The seeds contained in the mulch material usually provide growth which forms a dense cover in a relatively short period.

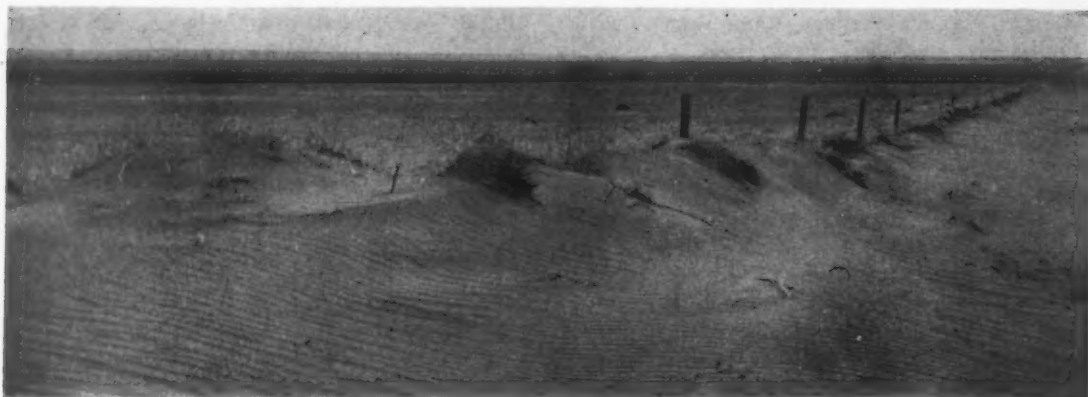
Natural revegetation of denuded island slopes is rapid, although adequate erosion control by natural "healing" is difficult because erosion occurs at a rate equal to or exceeding that of plant growth.

Discussing soil erosion control on Okinawa in comparison with experiences in the United States, I. E. Dunn, present nursery and conservation foreman at Kadena Air Force Base stated, "Soil erosion control problems in the Far East were similar to those in the States, except that rainfall in the Far East was more intense, causing a more rapid rate of runoff and soil losses." He, however, has found that soil erosion on Okinawa can be controlled by using a combination of both mechanical and vegetative controls. Effective controls are established, although most of the work is accomplished with hand labor in contrast to the machine operations of the States. Another factor in establishing grass cover on Okinawa is that practically all plantings are made vegetatively. Establishment of grass cover from seedlings has not proved successful. Seedlings of bermudagrass have produced some fair results but those consisting of fescue, redtop and orchardgrass have been complete failures, when used either alone or in

(Continued on page 24)



Approach zone sprigged, overseeded and mulched, 1953.



Wildlife suffers along with people, soil and crops.

## Effect of Dust Storms on Wildlife



Waterfowl stuck to the pond as the wind tore the land into swirling clouds, piling it deep along the fence rows, sifting through the boards of dwellings and barns.

By R. F. GREGG

Editor, *Colorado Conservation*

**D**URING February and March of this year, seasonal winds and a second consecutive dry winter brought back memories of the thirties as clouds of dust again rose over south-eastern Colorado. Landowners, professional conservationists and the press feared for the land itself; but another resource—wildlife—suffered enough to provide the most dramatic proof of the effect of land use practices on all renewable resources.

First word of dust damage to wildlife came from Preston Steele, district game warden for the Colorado Game and Fish Department at Springfield. Steele found 22 geese, 3 ducks, 2 quail, 2 cottontails and 1 pheasant dead in various fields, apparently victims of dust. The nostrils and windpipes of all were choked with mud. Shortly thereafter word was received from Game Warden Hugh Gamble at Flagler of the death of 4 antelope, and from Wildlife Technician Robert Hoover of the death of 1 mule deer.

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The worst tragedy was discovered a few miles east of Lamar, on the cracked, silt-filled flat of what had been a shallow range pond a few inches deep. Apparently seeking sanctuary from the dust, approximately 300 geese and a dozen ducks alighted on the water. Rapidly filling with airborne silt, the pond became a mudhole, and the waterfowl perished.

As this information came to light, the Department sent a questionnaire to all field personnel on the eastern slope of the mountains asking for a tabulation of wildlife losses. Surprisingly, no significant further losses were reported, although the consensus indicated that many small birds died.

The direct damage to wildlife is only part of the story, of course. In the most seriously affected drought areas, what little wildlife habitat existed (mostly along fence rows and ditches) is covered, since the vegetation caught the dust and piled it into drifts. It is reasonable to expect that resident game birds and small game animals will be seriously endangered next winter, and severe storms will probably bring large losses.

Another indirect effect will be loss of food if the drought continues through another year. In many areas, farmers expected to beat the threat of drought by stubble-fallowing alternating strips of land. But in the second year of the drought, there was not enough moisture in the plowed lands to start a crop, and the stubble was plowed, leaving entire tracts bare.



Among the casualties from dust.

If crop failures are widespread in these areas again this year (rains in early May helped the outlook somewhat) the wildlife food shortage next winter may be acute.

Tragic as the loss of wildlife is, and bleak as the future outlook is, the death of the game animals and birds may serve a useful purpose. People who cannot be aroused to the importance of soil conservation sympathize intensely with the problems of wildlife, and through publicity in *Life Magazine* and elsewhere (including our department's magazine, *Colorado Conservation*), these people may begin to see that unwise land use damages more than the landowner involved.

All the renewable resources are indeed closely interrelated, as ecologists have been preaching for years. And if the lesson is brought home by Colorado wildlife's experiences, the sacrifice may be worthwhile.

## TEACHING THE BLIND

(Continued from page 15)

Of great help would be a brief text in Braille covering the subject matter of the course, relating specifically to the requirements of the Merit Badge Manual. Such a text would enable them to do some studying between lessons and reduce the time spent in reviewing. We would urge that this be done by anyone undertaking a similar project. It is also felt that some of the "Do" items listed in the manual can be performed by these boys under proper planning and supervision.



**RURAL SOCIAL SYSTEMS AND ADULT EDUCATION.** By Dr. Charles P. Loomis and Others. 392 pp. 1953. E. Lansing, Michigan: Michigan State Press, \$5.

This book represents an extensive inquiry to determine how effective our current organizations and social systems are in reaching and educating adults living in rural areas.

Among the organizations studied were the cooperative extension service, farm organizations, civic and service clubs, government bureaus, libraries, churches, newspapers, farm magazines, and colleges and universities. Also included were the families, friendship groups, and other informal groups.

The trend in rural America is toward formal organizations and away from those informal groups which so long have characterized it. These cultural changes are significant. This book will be of interest to anyone dealing with rural social systems and adult education.

—T. A. NEUBAUER



## OKINAWA

(Continued from page 21)

mixture. Italian ryegrass also has produced fair results when used for over-seeding of sprigged plantings of bermudagrass and Zoysia.

Present erosion control activities indicate the importance of such programs to the future of the island but well planned grounds-maintenance and timely soil-management practices are required if the soil is to remain under control.

"The same vegetative practices and structural devices which hold water on the land for use there also serve to slow down its flow in the creeks and rivers, and thereby to reduce soil erosion, flooding and siltation. Hence the basic plan of small-watershed protection involves the use of conservation practices on the farmlands, pastures and woodlands, supplemented by waterflow-retarding structures and other water control measures on the small streams."

—E. A. NORTON, in a talk at  
Resource Conservation Field  
Day, Tulsa, Okla., May 8, 1954.

**DISTRICT SPREADS STORY.**—"Our work pays off in the support of businessmen," says Scott Rairdon, the alert chairman of the Elk County (Kans.) Soil Conservation District.

Here, in the Bluestem Hills section of Kansas, Main Street teams with Farm Lane to do a remarkable job of selling conservation. Businessmen know the district program nearly as well as they do the products on their own shelves. Their enthusiasm shows in many ways, one of which is the donation of prizes for the annual Elk County Soil Judging Contest.

In 1946 the situation was different. Soil conservation was less well understood and appreciated than it is today and local businessmen were reluctant to help the program. That was before the board started its acquaintance campaign.

Now after 6 years of work, nearly 400 cooperators, or almost half of the county's active farmers, are helping themselves to build better farms through the district's program.

One reason for the rapid progress has been the district board's continuous good will and informational program.

The board has received whole-hearted support in all its undertakings from John Maxwell, the county agent. This big, hard-working redhead pushes soil improvement as his number one project.

Last winter the board sponsored the filming of a

color motion picture showing steps in the development of a complete conservation plan. Taken on the farm of a banker award winner, the film was shown to most of the organized county groups.

This was followed by the district's own newspaper. The county does not have any daily newspapers or regular reporting service, so the board hired a printing firm to produce a full size, six-page newspaper to let everyone know the district's activities through the preceding year.

Supervisors, working in teams, contacted business firms for their support of the paper and in one afternoon sold more than enough advertising to pay its cost. All merchants contacted were glad to get in on the project.

The paper was edited by board members, the county agent, and Soil Conservation Service personnel. The paper contained pictures, feature stories, a record of the board's work, and it stressed the annual meeting.

Twenty-five hundred copies were distributed to every county box holder.

This summer the supervisors, to show their appreciation for the courtesies the townfolk had given the district program arranged, with the help of Maxwell, a businessman's twilight tour on a cooperator's farm whose plan was complete and where results could be plainly seen.

Two such tours were held, one in the north and one in the south part so that all might attend.

The townsmen received letters of invitation telling them district cooperator friends would call after work to take them to the farm where the tour would be held.

The host farmer welcomed the group. SCS personnel used drawings and pictures to tell what had been done on the farm and what would be seen on the tour.

Tractor-drawn trailer wagons carried the visitors over the farm for a look at grassed waterways, pasture seeding, legumes, terraces, and other conservation practices.

A remark at one of the stops that impressed many persons was made by Floyd Sweet, a contractor: "When I was terracing this field it was riddled with gullies and I never expected to see such crops as these."

In the cool twilight, with a soft breeze waving heavy heads of wheat and lush brome, the guests were in a mood to see and appreciate the community-wide benefits of conservation planning.

Willard Morse, president of the First National Bank in Howard, commented, "I have been to hundreds of meetings but for learning a lot and still having a fine time you can't beat these twilight tours."

A cafeteria supper, served by the supervisors, completed the evening. More than 80 percent of the businessmen of the county participated in one of the two tours.

The board of supervisors are glad to have a part in raising the county's agricultural standards. As Scott Rairdon says, "The more active we are, the more we enjoy our work and the more company we have in our efforts."

—D. D. HOLLAND